## FOREWORD

The Office of NRR has undertaken a program to update NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants LWR Edition," (SRP). The Standard Review Plan Update and Development Program (SRP-UDP) was established in 1991 to update NUREG-0800 for use in reviewing future reactor design applications. The updated SRP incorporates changes in the regulation of the nuclear power industry that have occurred since the 1981 revision of the SRP.

Noticeable changes in the updated SRP are:

- technical rationale was developed and added to each SRP section to provide a basis for the acceptance criteria;
- primary review branch names, acronyms, and area of responsibility were updated;
- consistent format for Areas of Review, Review Interfaces, was developed and applied to each section;
- NRC metrication policy was implemented;
- resolution of NUREG-0933 Generic Issue B-3 was implemented;
- TMI Action Plan Items were reconciled;
- changes related to 10 CFR 52 licensing process were implemented.

The updated SRP also contains several new SRP sections to address staff review of issues that are supported by established staff positions or are fully resolved in the review of evolutionary designs. The new sections are:

3.13 Threaded Fasteners
14.3 Certified Design Material and ITAAC Review Guidance (consists of 14.3 and 14.3.1 through 14.3.11)*
17.4 Reliability Assurance Program

In addition, Chapter 18, "Human Factors Engineering," (currently Sections 18.0, 18.1 and 18.2) has been revised in its entirety (as a new Section 18.0) to reflect current staff positions.

Additional new SRP sections currently under development or awaiting completion of staff review include:

2.3.6 Site Parameter Envelope
3.12 Interfacing Systems Loss of Coolant Accidents (ISLOCA)
6.8 Reactor Coolant Depressurization Systems

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*Many SRP sections in this draft version reference SRP Section 14.3 as "Proposed" even though it is included in the current draft.

8.4 Station Blackout
15.8 Anticipated Transients Without Scram (ATWS)
19.2 Severe Accident Containment Performance

Upon completion of staff review, these new sections will be issued for public comment for future incorporation into the SRP.

The updated SRP is not intended to incorporate new or revised requirements; it simply compiles and documents requirements and staff positions that have already been established elsewhere. The revisions were derived from three programmatic areas: 1) NRC regulatory documents issued since the previous SRP revision; 2) industry consensus codes and standards applicable to the SRP sections; and 3) staff positions related to evolutionary plant design reviews as presented in SECY 90-016, SECY 93-087 and the design certification safety evaluation reports for the Advanced Boiling Water Reactor Design (ABWR) and ABB-CE System 80+ Design (CE80+). The updated SRP sections have been delivered to the NRR technical staff and are currently under review. In parallel with the staff review, this updated SRP is issued to solicit public review and comment on the manner in which the requirements and staff positions from these three areas have been incorporated. Public review is not intended to reopen a dialogue on the merits of the requirements themselves, but only to allow the public an opportunity to evaluate if existing requirements and staff positions are accurately captured in the text of the updated SRP.

The revised text is to a large extent the work of contractors and its acceptance is contingent upon full NRC staff review and concurrence. Further staff review and evaluation, including resolution of public comments, will be needed before a final revision to NUREG-0800 can be published. This document represents the best effort to capture existing regulations and staff positions into the text of the SRP. The source documents that form the bases for the changes are referenced. By reviewing the source documents, the public can arrive at an independent conclusion as to the accuracy and adequacy of the revised SRP text.

Since the document has not received the benefit of legal review or technical staff review and concurrence, it is considered a "work-in-progress" that may be revised as a result of staff review. The NRC is soliciting public comment in parallel with staff review in order to minimize review time and obtain early public and industry input. A significant number of the proposed revisions to the SRP are based on staff positions developed during the design certification review of evolutionary plants and presented in the safety evaluation reports for the ABWR and CE80+. Final rulemaking for design certification is ongoing and may result in changes to these staff positions. The final revision to NUREG-0800, when published, will reflect the staff positions that result from design certification rulemaking.

The procedure that was used to identify and develop necessary changes to the individual sections of the SRP is as follows:

1. A database of NRC regulatory documents and related search software were obtained.

2. The database was searched using keywords and phrases related to the specific subject matter of the individual SRP section.
3. Searches that resulted in a match between the regulatory document and the keyword or phrase were documented and given a unique identification number. These are referred to as "Potential Impacts" (i.e., instances that could potentially result in a change to the SRP).
4. The Potential Impacts were analyzed for similarity of issue and consolidated into discrete suggested changes to the SRP section. The consolidated Potential Impacts were termed "Integrated Impacts" and were also assigned a unique identification number.
5. The Integrated Impacts were further evaluated to determine the nature of change to the SRP that was indicated. Options for SRP revision were developed by means of a Revision Options Checklist (ROC). If it was concluded that a revision to the SRP was needed, appropriate text for an SRP revision was developed.

Each change to the text of the SRP is identified by a unique superscript that provides the basis for the revision. For substantive changes (e.g., changes resulting from regulatory requirements or staff position rather than format or editorial changes), a path back to the source document that forms the basis for the change to the SRP is provided by reference to Integrated Impacts which in turn reference Potential Impacts.

In order to provide the public full opportunity to reach an independent conclusion as to the accuracy and adequacy of the updated SRP text, the documents being issued for review include the following:

1 - revised SRP sections consisting of:
- a redline/strikeout copy of the revised SRP sections that shows all changes resulting from the update program with each change identified by a unique superscript number.
- Attachment A, a table that lists each change in order of occurrence, and the source of and a description of the change.
- For SRP sections with substantive changes, an additional table, Attachment B, identifies the issue(s) that resulted in the specific change(s).

2 - Appendix I (provides the Integrated Impacts referenced in Attachments A and B of the revised SRP sections)

3 - Appendix II (contains all Potential Impacts referenced in Appendix I)

Traceability back to the source document that forms the basis for the change is achieved through Appendix I and Appendix II.

Section 50.34(g) of 10 CFR 50 requires that applicants for light water cooled nuclear power plant operating licenses, construction permits, manufacturing licenses, and preliminary or final design approvals for standard plants shall include an evaluation of the facility against the SRP revision in effect six months prior to the docket date of the application.

This updated SRP, together with the supporting documentation that provides traceability back to the source of the change, constitutes the SRP currently in effect. The SRP is made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with SRPs is not required. Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

**ACKNOWLEDGMENT**

The primary contractor for the SRP update program was Battelle Pacific Northwest National Laboratories (PNNL). PNNL was instrumental in developing and implementing the methodology, developing the supporting databases for accomplishing the program objectives, and in integrating the final product into a coherent and consistent document. Because of the additional effort required in the later stages of the program, a technical assistance contract was negotiated with the Idaho National Engineering Laboratory (INEL) primarily to help in developing the text revisions. Therefore, although PNNL was the primary contractor, INEL was assigned the task of developing the actual text revisions to the majority of the SRP sections. The NRC would like to thank these organizations for the valuable assistance provided in completing this program.

The actual breakdown of the section assignments is as follows:

INEL prepared all SRP section text revisions except for sections 3.2.1, 3.2.2, 3.5.1.1, 3.5.1.2, 3.5.1.4, 3.5.1.5, 3.5.1.6, 3.5.2, 3.7.1, 3.7.2, 3.7.3, 3.7.4, 3.9.4, 3.9.5, 4.2, 4.3, 4.4, 4.5.1, 4.5.2, 4.6, 5.2.2, 5.2.3, 5.2.4, 5.2.5, 5.3.1, 5.3.2, 5.3.3, 5.4, 5.4.1.1, 5.4.2.1, 5.4.2.2, 5.4.6, 5.4.7, 5.4.12, 6.1.1, 6.1.2, 6.2.1, 6.2.1.1A, 6.2.1.1B, 6.2.1.1C, 6.2.1.2, 6.2.1.3, 6.2.1.4, 6.2.1.5, 6.2.3, 6.2.7, 6.3, 6.5.2, 6.5.4, 6.5.5, 6.6, 9.2.1, 9.2.6, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 9.5.1, 9.5.2, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 10.3, 10.3.6, 10.4.9, 13.6, 14.2, 15.4.1, 15.4.6, and 19.2.4, which were prepared by PNNL.

New SRP Section 14.3 was drafted by the NRC staff with PNNL providing the supporting documentation. Section 1.8 was revised by the NRC staff.

New SRP Chapter 18 was drafted as a joint effort between Brookhaven National Laboratory and the NRC staff, with INEL providing the supporting documentation.

Chapter 7 of the SRP is being revised by the NRR Instrumentation and Controls Branch under a separate program. Since no revisions to Chapter 7 were made in the SRP Update and Development Program, the existing Chapter 7 SRP Sections are current and are not included in this document. A new SRP Chapter on the regulatory applications of Probabilistic Risk Assessment (PRA) is also being developed under a separate program.

Existing SRP Sections 2.5.1, 2.5.2, and 2.5.3 were revised to support rulemaking by the NRC Office of Research and have been issued for public review as proposed Revision 3. In order to avoid possible confusion, these three sections are not included in this document and will be updated after the current rulemaking is completed.

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